# PORTABLE INFORMATION-PROCESSING DEVICE HAVING A COLOR CHANGING CASE

## FIELD OF THE INVENTION

The present invention relates to a portable information-processing device and particularly to a portable information-processing device with a color changing case.

## BACKGROUND OF THE INVENTION

With the arrival of the information age, information-processing devices are widely used by the general public. The portable information-processing devices (such as notebook computers and the like) have a small size and are easy to carry, and are almost as powerful as the desktop computer, hence have been well received by users in recent years.

These days when consumers buy products they often consider many factors. Besides functional requirements, price and practicality, visual appealing also is an important consideration. The present exterior design of the portable information-processing devices mostly adopts a metal alloy (such as an aluminum magnesium alloy) case to improve the value perception. In addition to enhancing the case structural strength, it also aims to increase the appeal to consumers. The metal case often is colored in black or silver. Although it can enhance the product value perception, the limited exterior color selection becomes a constraint of product diversity.

On mobile communication devices (such as handsets), there are designs for replacing the cases. As the structure of the handset case is simple, users can replace the case of different colors as desired to rekindle their amusement without buying new handsets. Aside from increasing visual diversity of the product appearance, it provides rich choices for fashion-conscious consumers. However, on the portable information-processing devices, the structure of their cases is more complicated. Their cases generally are not designed for user DIY (Do-It-Yourself) disassembly or replacement. Hence how to make the exterior color of the portable information-processing device changeable to increase product visual diversity is an issue remaining to be resolved in the industry.

## SUMMARY OF THE INVENTION

In view of the aforesaid disadvantages and problems, the primary object of the present invention is to provide a portable information-processing device with a color changing case. By adding a layer of a color changeable film in a host case, the portable information-processing device may have multiple color alterations on the exterior to increase the visual diversity of the product.

In order to achieve the foregoing object, the portable information-processing device with a color changing case according to the invention includes a host case and a color-changing module.

The host case is made from a colorless and transparent reinforced plastic material and includes an upper shell and a lower shell that are coupled together to form a housing space, to hold a main board and a liquid crystal panel of the portable information-processing device. The upper shell and the lower shell have respectively a laminated space to hold the color-changing module.

The color changing module is located in the laminated space of the host case and made from a color-changing electroluminescent material. When receiving a potential level signal, it can generate a color corresponding to the potential level signal.



In addition, the portable information-processing device with a color changing case according to the invention further includes a color control module linking to the color-changing module to generate a control signal and produce a corresponding potential level signal. The potential level signal is input into the color-changing module to generate a corresponding color thereby to control the exterior color of the portable information-processing device.

The color control module further includes a touch control unit and a temperature sensor. The touch control unit is located on one side of the host case to receive the compression of an external force to generate a piezoelectric potential level signal to be input into the color-changing module for changing the exterior color of the color-changing module. The touch control unit includes a piezoelectric sensor. The temperature sensor is located on one side of the host case to detect the ambient temperature and generate a potential level signal corresponding to the temperature. The potential level signal is put in the color-changing module for changing the exterior color of the color-changing module. The temperature sensor includes a thermistor. The touch control unit further includes a system random color-changing unit to perform a random parameter process and generate a control signal randomly, to enable the color-changing module to change the exterior color randomly.

By means of the portable information-processing device with a color changing case of the invention, a layer of color changing film is added in the transparent host case to generate various colors on the exterior of the portable information-processing device. Thus visual diversity of the product increases.

The foregoing, as well as additional objects, features and advantages of the invention will be more readily apparent from the following detailed description, which proceeds with reference to the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a sectional view of the invention.

FIG. **2** is a system block diagram of the invention; and

FIG. **3** is a schematic view of the structure of the color-changing electroluminescent material of the invention.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Refer to FIG. **1** for a sectional view of the invention. A host case **10** is made from a reinforced plastic material that is colorless and transparent. It includes an upper shell **101** and a lower shell **102** that are coupled to form a housing space to hold a main board **50** and a liquid crystal panel **60** of a portable information-processing device. The upper shell **101** and the lower shell **102** have respectively a laminated space **1011** and **1021** for holding a color-changing module **20**.

Refer to FIG. **2** for the system block diagram of the invention. It includes the color-changing module **20**, a color control module **30** and a selection module **40**.

The color-changing module **20** is located in the laminated space and is made from a color-changing electroluminescent material that can generate a color corresponding to a potential level signal.

The color control module **30** is connected to the color-changing module **20**, to generate a control signal to control